

1 What is claimed is:

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3 1. A system for position a tethered spacecraft from a base  
4 spacecraft, the system comprising,

5 a stand-off extending from the base spacecraft for providing  
6 a maximum stand-off distance,

7 a tethered extending the length of stand-off,

8 a tether drive motor for moving the tether the length of the  
9 stand-off, and

10 a fastener for coupling the tethered spacecraft to the  
11 tether, the tether drive motor operated to move tethered  
12 spacecraft to a desired distance from the base spacecraft up to  
13 the maximum stand-off distance.

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15 2. The system of claim 1 wherein,

16 the tether drive motor comprises opposing tether drive  
17 motors, and

18 the stand-off comprises a pulley, the tether extending along  
19 the length of the stand-off and around the pulley and again  
20 along the length of the stand-off, the opposing tether motors  
21 respectively releasing and taking up the tether for extending  
22 and retracting the tether spacecraft away from and toward the  
23 base spacecraft respectively.

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26 3. The system of claim 1 wherein,

27 the fastener is a clamp.

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1      4. The system of claim 1 wherein,  
2                the tether is a metal belt operated as a belt drive.  
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4      5. The system of claim 1 wherein the stand-off is a semirigid  
5                metallic tape, the system further comprising,  
6                a stand-off reel motor for releasing and taking up the  
7                semirigid metallic tape.  
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9      6. The system of claim 1 wherein the stand-off is a semirigid  
10               metallic tape having a concave surface, the system further  
11               comprising,  
12               a stand-off reel motor for releasing and taking up the  
13               semirigid metallic tape.

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1   7. A system for position a tethered spacecraft from a base  
2   spacecraft, the system comprising,

3       a stand-off extending from the base spacecraft for providing  
4       a maximum stand-off distance,

5       a stand-off reel motor coupled to the base spacecraft for  
6       taking up and releasing the stand-off to the maximum stand-off  
7       distance,

8       a pulley disposed at a distal end of the stand-off at the  
9       maximum stand-off distance,

10      the tether extending along the length of the stand-off and  
11     around the pulley and again along the length of the stand-off,

12      opposing tether drive motors for taking up and releasing the  
13     tether extending between the opposing tether drive motors, and

14      a clamp for coupling the tethered spacecraft to the tether,  
15     the opposing tether drive motor operated to move the tethered  
16     spacecraft to a desired distance from the base spacecraft up to  
17     the maximum stand-off distance.

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19   8. The system of claim 1 wherein,

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21       the tether is a metal belt operated as a belt drive.

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24   9. The system of claim 1 wherein the stand-off is a semirigid  
25     metallic tape, the system further comprising,

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27       a stand-off reel motor for releasing and taking up the  
28     semirigid metallic tape.

1 10. The system of claim 1 wherein the stand-off is a semirigid  
2 metallic tape having a concave surface, the system further  
3 comprising,

4 a stand-off reel motor for releasing and taking up the  
5 semirigid metallic tape.

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